The world is not on a path to meet the UN’s Millennium Development Goals ...
… yet within one more generation the global demand for food and energy will double

**World Population, GDP, Energy 1900-2008**

(2008=1)

- **World population**
- **World Energy**
- **World GDP**

---

9 billion people to feed. A changing climate.

**NOW WHAT?**

The world's farmers will need to double food production by 2050.
Global GDP/capita is only \( \frac{1}{4} \) of OECD GDP/capita

Can population and GDP growth continue – or are they a one-off blip in history fuelled by fossil-fuels?
The days of everlasting economic growth fueled by cheap oil are over

Coal is abundant and has many advantages

- Abundant
- Globally distributed
- Price affordable & stable
- Safe & reliable
- Readily converted to other valuable products

Enough coal for >100 years

> 2 x gas (60 yrs)
> 3 x oil (41 years)
Carbon Capture & Storage – led by CTL?

IPCC Special Report on CCS

Costs to stabilise CO₂ emissions can be reduced by 30% or more by CCS

Power plants with CCS could emit 80-90% less CO₂

Most CCS technologies are either “economically feasible under specific conditions” or part of a “mature market” now

Huge storage capacity for CO₂ in geological formations

New Zealand coal/lignites: ~15 billion tonnes

World coal reserves per capita (tonnes)

<table>
<thead>
<tr>
<th>Country</th>
<th>Reserves per Capita (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>~15 billion</td>
</tr>
<tr>
<td>Australia</td>
<td></td>
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<tr>
<td>USA</td>
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<tr>
<td>China</td>
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<td>India</td>
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<td>Germany</td>
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</tbody>
</table>

Saudi Arabia oil reserves as tonnes coal equivalent per capita
Solid Energy’s current lignite resource

>3 Bt recoverable

Strategy:
Progression of projects up to a CTL plant
> 100,000 bbl/day
Solid Energy already owns 1.4 Bt

<table>
<thead>
<tr>
<th>Coal Resource</th>
<th>Owned already (Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mataura</td>
<td>1,180</td>
</tr>
<tr>
<td>Croydon</td>
<td>170</td>
</tr>
<tr>
<td>Waimumu</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,400</strong></td>
</tr>
</tbody>
</table>

*With all projects operating together, SE owns/controls sufficient land and resource to operate for 50+ years*

Energy policies must recognise all objectives